Criteria | Corporates | Project Finance: Updated Project Finance Summary Debt Rating Criteria

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(**Editor's Note:** We originally published this criteria article on Sept. 18, 2007. We are republishing this article following our periodic review completed on Dec. 4, 2012. This article supersedes the article titled, "**Project Finance Summary Debt Rating Criteria**," which was published on Sept. 16, 2004.
The criteria for assessing construction and operations counterparty risk in project financings as described hereinafter has been superseded by the criteria described in "**Project Finance Construction And Operations Counterparty Methodology**," published Dec. 20, 2011.)

The world of project finance has continued to grow since Standard & Poor's published its last comprehensive rating criteria. Project financing has become increasingly sophisticated and often riskier, with a wider investor base attracting new finance structures and investors across the globe. We have closely followed these developments over the years, extending and revising our criteria from time to time to enable appropriate assessment of project-finance risk originating from new markets, new structures, and new avenues of ownership. Factoring different market circumstances into our analysis remains challenging, but global consistency of our criteria and approach has been our prime objective in responding to these new market developments. The combined magnitude of these criteria additions and changes is not great; it is, rather, more of a rearrangement that better reflects current practice and changes to associated criteria, such as recovery aspects.

Additionally, we want to note that we have revised certain aspects of our internal analytical framework for rating projects, and stress that although we have adopted one significant change--eliminating our scoring approach--no ratings will be affected. We introduced scoring six years ago to facilitate the compare-and-contrast of key project risks across the spectrum of rated projects. The scores, and the criteria on which they were based, represented only guidelines. Scores were never meant to be additive, but nevertheless, many readers understood them as such. Because the scoring caused confusion among some users of our criteria, we decided to remove those suggested scores and focus more on other analytical tools to compare risk across projects. In response to the changing world of project finance and the blurring of boundaries from pure project-finance transactions to hybrid structures, our analysis has been expanded and now incorporates some corporate analytical practice, to look at a combination of cash-flow measures, capital structure, and liquidity management.

We also have reincorporated our assessment of force majeure risk into our analysis of a project's contractual foundation and technical risk, rather than addressing these as a separate risk category.

The overall criteria framework has not been changed, however, and still provides a very effective framework for analyzing and understanding the risk dynamics of a project transaction.

Recent Trends

As project finance continues to adjust to the increasingly diverse needs of project sponsors, their lenders, and investors, in many cases the analysis of risk continues to grow in complexity. Despite this growing variety of project-finance application and location, the continuing market desire for non-recourse funding solutions suggests that project finance will remain a robust means of raising infrastructure capital. More aggressive financial structures sometimes blur the boundaries of non-recourse finance both in reality and perception. Also, the greater exposure to market risk has forced many sponsors to seek greater flexibility in project structures to manage cash, take on additional debt, and enter new businesses with few restrictions--which makes some projects look more like corporates.

Projects continue to evolve from their traditional basis of long-term contracted revenue, and now involve a greater exposure to a number of risks. Initial project finance primarily was focused on power markets that had strong contractual bases; but these days, more projects are exposed to the risks of volatile commodity markets or traffic volume exposure, among other types. Strong global demand for construction and commodities has increased construction risk, even for simple projects.

Fewer projects have been able to secure the more creditor-friendly fixed-price, turnkey, date-certain construction contracts that better protect lenders from construction and completion risk. Term B loan structures--"mini-perms", with minimal amortizations and risky bullet maturities--have established themselves firmly in the project world, but these capital plans have now been joined by more complex first-

and second-lien structures, and more debt within holding-company structures, particularly for payment-in-kind instruments that we view essentially as debt.

Many long-term concession projects are maximizing leverage by employing accreting debt structures that enable sponsors to recoup quick equity returns--sometimes before any debt has been repaid--but that can greatly increase lenders' exposure to default risk in the later years (see "**Credit FAQ: Accreting Debt Obligations and the Road to Investment Grade for Infrastructure Concession**," published to RatingsDirect on Sept. 5, 2007). Private equity has made strong inroads to project lending and ownership--either directly or through managed infrastructure funds. The trend away from ownership by experienced sponsors raises new concerns about ownership and long-term operational performance. Positively, the usage of project finance is growing in part thanks to these new structures. In particular, financing of public-private partnerships (PPPs) has grown significantly over the years, with PPPs often considered to be a lower-risk investment due to the involvement of a public authority or government entity.

Another observation is the increase of insured project finance transactions. Monoline insurance companies providing guarantees for timely-and-full debt servicing in cases of projects being unable to do so has opened different investment opportunities for the financial markets. However, we closely monitor and analyze the underlying risk of these projects to determine the underlying credit quality, as a part of the insured rating exercise.

Finally, the emergence of the Middle East markets as one of the largest global markets of project finance has challenges of its own. Driven by low default track records and strong government support or sponsorship, these projects have created a class of their own in terms of investors' perception of risk allocation. Middle East project finance is an area that remains under criteria development while we aim to adequately weigh up the hard facts, such as risk structure and allocation, terms and conditions of project financings in the region, and stated support from governments.

General Approach

For lenders and other investors, systematic identification, comparison, and contrasting of project risk can be a daunting task, particularly because of the new complexity presented to investors. To assess project-finance risk, Standard & Poor's continues to use a framework based on the traditional approach that grew out of rating U.S. independent power projects but which has been adapted to cover a growing range of other projects globally, such as more complex transportation schemes, stadiums and arenas, hotels and hospitals, renewable energies, and large oil & gas projects.

Our approach begins with the view that a project is a collection of contracts and agreements among various parties, including lenders, which collectively serves two primary functions. The first is to create an entity that will act on behalf of its sponsors to bring together several unique factors of production or activity to generate cash flow from the sale/provision of a product or service. The second is to provide lenders with the security of payment of interest and principal from the operating entity. Standard & Poor's analytic framework focuses on the risks of construction and operation of the project, the project's long-term competitive position, its legal characterization, and its financial performance--in short, all the factors that can affect the project's ability to earn cash and repay lenders.

"Project Finance" Defined

A project-finance transaction is a cross between a structured, asset-backed financing and a corporate financing. A project-finance transaction typically is characterized as non-recourse financing of a single asset or portfolio of assets where the lenders can look only to those specific assets to generate the cash flow needed to service its fixed obligations, chief of which are interest payments and repayment of principal. Lenders' security and collateral is usually solely the project's contracts and physical assets. Lenders typically do not have recourse to the project's owner, and often, through the project's legal structure, project lenders are shielded from a project owner's financial troubles.

Project-finance transactions typically are comprised of a group of agreements and contracts between lenders, project sponsors, and other interested parties who combine to create a form of business organization that will issue a finite amount of debt on inception, and will operate in a focused line of business over a finite period. There are many risks that need to be analyzed when rating a project-finance transaction; however the chief focus within Standard & Poor's rating process is the determination of the project's stability of projected cash flow in relation to the projected cash needs of the project. This criteria article addresses the areas on which we focus when conducting analysis, and how this translates into a rating on a project-finance transaction as a whole. For each focus area, we gauge the relative importance for the project being rated and the impact that focus area could have on the project's overall cash-flow volatility. The process is very systematic, but is tailored to each project rating.

The rating

Standard & Poor's project debt ratings address default probability--or, put differently, the level of certainty with which lenders can expect to receive timely and full payment of principal and interest according to the terms of the financing documents. Unlike corporate debt, project-finance debt is usually the only debt in the capital structure, and typically amortizes to a schedule based on the project's useful life. Importantly, also unlike our corporate ratings, which reflect risk over three-to-five years, our project debt ratings are assigned to reflect the risk through the debt's tenor. If refinancing risk is present, we incorporate into the rating the ability of the project to repay the debt at maturity solely from the project sources. Our project ratings often factor in construction risk, which in many cases can be higher than the risk presented by expected operations once the project is completed. In some cases, the construction risk is mitigated by other features,

which enables the debt rating to reflect our expectations of long-term post-construction performance. Otherwise, we will rate to the construction risk, but note the potential for ratings to rise once construction is complete.

Another important addition to our project-debt ratings is the recovery rating concept that Standard & Poor's began to assign to secured debt in late 2003. The recovery rating estimates the range of principal that lenders can expect to receive following a default of the project. Our recovery scale is defined in table 1. We define the likely default scenario, and then assess recovery using various techniques, such as discounted cash-flow analysis or EBITDA multiples. Or, we will examine the terms and conditions of project assets, such as contracts and concession agreements, for example, to estimate the expected recovery. The added importance of the recovery rating is that recovery can affect the ratings on certain classes of project debt when more than one class of debt is present.

Table 1

S&P Recovery Scale

Recovery rating	Recovery description	Recovery expectations*
1+	Highest expectation, full recovery	100%¶
1	Very high recovery	90%-100%
2	Substantial recovery	70%-90%
3	Meaningful recovery	50%-70%
4	Average recovery	30%-50%
5	Modest recovery	10%-30%
6	Negligible recovery	0%-10%

*Recovery of principal plus accrued but unpaid interest at the time of default. ¶Very high confidence of full recovery resulting from significant overcollateralization or strong structural features.

Framework For Project Finance Criteria

Thorough assessment of project cash flows requires systematic analysis of five principle factors:

- Project-level risk
- Transactional structure
- Sovereign risk
- Business and legal institutional development risk
- Credit enhancements

Project-Level Risks

Project-level risk, or the risks inherent to a project's business and within its operating industry, will determine how well a project can sustain ongoing commercial operations throughout the term of the rated debt and, as a consequence, how well the project will be able to service its obligations (financial and operational) on time and in full.

Specifically, we look at a project's:

- Contractual foundation. Operational and financing contracts--such as offtake agreements, concessions, construction arrangements, hedge agreements, loan contracts, guarantees--that, along with the physical plant, serve as the basis of the enterprise.
- Technology, construction, and operations. Does it have a competitive, proven technology, can construction be performed on time and on budget, and can it operate in a manner defined under the base case?
- Resource availability. Capacity to incorporate "input" resources, such as wind or natural gas.
- Competitive-market exposure. Competitive position against the market in which it will operate.
- Counterparty risk. Risk from relying on suppliers, construction companies, concession grantors, and customers.
- Financial performance. Risks that may affect forecast results, and cash-flow variability under likely stress scenarios.

Contractual foundation

We analyze a project's contractual composition to see how well the project is protected from market and operating conditions, how well the various contracted obligations address the project's operating-risk characteristics, and how the contractual nexus measures up against other project contracts.

The structure of the project should protect stakeholders' interests through contracts that encourage the parties to complete project-construction satisfactorily and to operate the project competently in line with the requirements of the various contracts. The project's structure also should give stakeholders a right to a portion of the project's cash flow so that they can service debt, and should provide for the releasing of cash in the form of equity distributions (dividends or other forms of shareholder payments) in appropriate circumstances. Moreover, higher-rated projects generally give lenders the assurance that project management will align their interests with lenders' interests; project management should have limited discretion in changing the project's business or financing activities. Finally, higher-rated projects usually distinguish themselves from lower-rated projects by agreeing to give lenders a first-perfected security interest (or fixed

charge, depending on the legal jurisdiction) in all of the project's assets, contracts, permits, licenses, accounts, and other collateral; in this way the project can either be disposed of in its entirety should the need arise, or the lenders can step in to effectively replace the project's management and operation so as to generate cash for debt servicing.

As infrastructure assets have become increasingly popular for concessions, not only is the analysis of the strengths and weaknesses of the concession critical but, also the rationale for the concession becomes an essential element of our analysis. Contract analysis focuses on the terms and conditions of each agreement. The analysis also considers the adequacy and strength of each contract in the context of a project's technology, counterparty credit risk, and the market, among other project characteristics.

Commercial agreements vs. collateral agreements. Project-contract analysis falls into two broad categories: commercial agreements and collateral arrangements.

Commercial project contracts analysis is conducted on contracts governing revenue and expenses, such as:

- Power purchase agreements;
- Gas and coal supply contracts;
- Steam sales agreements;
- Liquefied natural gas sales agreements;
- Concession agreements;
- Airport landing-fee agreements;
- Founding business agreement; and
- Any other agreements necessary for the operations of the project.

Collateral agreements typically require analysis of a project's ownership along with financial and legal structures, such as:

- Credit facilities or loan agreement;
- Indenture;
- Equity-contribution agreement;
- Mortgage, deed of trust, or similar instrument that grants lenders a first-mortgage lien on real estate and plant;
- Security agreement or a similar instrument that grants lenders a first-mortgage lien on various types of personal property;
- Assignments to lenders of project assets, accounts, and contracts;
- Project-completion guarantees;
- Depositary agreements, which define how the project cash is handled;
- Shareholder agreements;
- Collateral and inter-creditor agreements; and
- Liquidity-support agreements, such as letters of credit (LOCs), surety bonds, and targeted insurance policies.

An important objective of our contractual assessment is the understanding of a project's full risk exposure to potential force majeure risks, and how the project has mitigated such risk. Project financings rely on asset and counterparty performance, but force majeure events can excuse performance by parties when they are confronted with unanticipated events outside their control. A careful analysis of force majeure events is critical in a project financing because such events, if not properly recompensed, can severely disrupt the careful allocation of risk on which the financing depends. Floods and earthquakes, civil disturbances, strikes, or changes of law can disrupt a project's operations and devastate its cash flow. In addition, catastrophic mechanical failure due to human error or material failure can be a form of force majeure that may excuse a project from its contractual obligations. Despite excusing a project from its supply obligations, the force majeure event may still lead to a default depending on the severity of the mishap.

Technology, construction, and operations

In part, a project's rating rests on the dependability of a project's design, construction, and operation; if a project fails to achieve completion or to perform as designed, many contractual and other legal remedies may fail to keep lenders economically whole.

The technical risk assessment falls into two categories: construction and operations.

Construction risk relates to:

- Engineering and design
- Site plans and permits
- Construction
- Testing and commissioning

Operations risk relates to:

- Operations and maintenance (O&M) strategy and capability
- Expansion if any contemplated
- Historical operating record, if any

Project lenders frequently may not adequately evaluate a project's technical risk when making an investment decision but instead may rely on the reputation of the construction contractor or the project sponsor as a proxy for technical risk, particularly when lending to unrated transactions. The record suggests that such confidence may be misplaced. Standard & Poor's experience with technology, construction, and operations risk on more than 300 project-finance ratings indicates that technical risk is pervasive during the pre- and post-construction phases, while the possibility of sponsors coming to the aid of a troubled project is uncertain. Thus, we place considerable importance on a project's technical evaluation.

We rely on several assessments to complete our technical analysis. One key element is a reputable independent expert's (IE) project evaluation. We examine the IE's report to see if it has the proper scope to reach fundamental conclusions about the project's technology, construction plan, and expected operating results, and then we determine whether these conclusions support the sponsor's and EPC contractor's technical expectations. We supplement our review of the IE's report with meetings with the IE and visits to the site to inspect the project and hold discussions with the project's management and construction contractor or manager. Without an IE review, Standard & Poor's will most likely assign a speculative-grade debt rating to the project, regardless of whether the project is in the pre- or post-construction phase. Finally, we will assess the project's technical risk using the experience gained from examining similar projects.

Another key assessment relates to the potential credit effect of a major equipment failure that could materially reduce cash flow. This analysis goes hand-in-hand with the contractual implications of force majuere events, described above, and counterparty risk, described below. If the potential credit risk from such an event is not mitigated, then a project's rating would be negatively affected. Mitigation could be in the form of business-interruption insurance, cash reserves, and property casualty insurance. The level of mitigation largely depends on the project type--some types of projects, such as pipelines and toll roads--are exposed to low outage risks and thus could achieve favorable ratings with only modest risk mitigation. In contrast, a mechanically complex, site-concentrated project--such as a refinery or bio-mass plant--can be highly exposed to major-equipment-failure risk, and could require robust features to deal with potential outages that could take months to repair.

Resource availability

All projects require feedstock to produce output, and we undertake a detailed assessment of a project's ability to obtain sufficient levels. For many projects, the input-supply risk largely hinges on the creditworthiness of the counterparty that is obligated to provide the feedstock, which is discussed below under Counterparty Exposure. Other types of projects, however, such as wind and geothermal power, rely on the type of natural resources of which few third parties are willing to guarantee production. In these cases, we require an understanding of the availability of the natural resource throughout the debt tenor. We use various tools to reach our conclusions, but most important will be the analysis and conclusions of a reputable IE or market consultant on the resource sufficiency throughout the debt tenor. In many cases, such as wind, where the assessment can be highly complex, we may require two surveys to get sufficient comfort. Just as with IE technical reports, a project striving for investment-grade and high speculative-grade ratings will require a strong resource-assessment report. However, given the potential for uncertainty in many resource assessments, stronger ratings are likely to require either more than one IE resource assessment, geographic diversity, or robust liquidity features to meet debt-repayment obligations if the resource does not perform as expected.

Competitive-market exposure

A project's competitive position within its peer group is a principal credit determinant, even if the project has contractually-based cash flow. Analysis of the competitive market position focuses on the following factors:

- Industry fundamentals
- Commodity price risk
- Supply and cost risk
- Regulatory risk
- Outlook for demand
- Foreign exchange exposure
- The project's source of competitive advantage
- Potential for new entrants or disruptive technologies

Given that many projects produce a commodity such as electricity, ore, oil or gas, or some form of transport, low-cost production relative to the market characterizes many investment-grade ratings. High costs relative to an average market price in the absence of mitigating circumstances will almost always place lenders at risk; but competitive position is only one element of market risk. The demand for a project's output can change over time (seasonality or commodity cycles), and sometimes dramatically, resulting in low clearing prices. The reasons for demand change are many, and usually hard to predict. Any of the following can make a project more or less competitive:

- New products
- Changing customer priorities
- Cheaper substitutes
- Technological change
- Global economic and trade developments

Experience has shown, however, that offtake contracts providing stable revenues or that limit costs, or both, may not be enough to mitigate adverse market situations. As an example, independent power producers in California had to restructure parts of fixed-price offtake agreements when the utilities there came under severe financial pressure in 2000 and 2001. Hence, market risk can potentially take on greater importance than the legal profile of, and security underlying, a project. Conversely, if a project provides a strategic input that has few, if any, substitutes, there will be stronger economic incentives for the purchaser to maintain a viable relationship with the project.

Counterparty exposure

The strength of a project financing rests on the project's ability to generate stable cash flow as well as on its general contractual framework, but much of a project's strength comes from contractual participation of outside parties in the establishment and operation of the project structure. This participation raises questions about the strength and reliability of such participants. The traditional counterparties to projects have included raw-material suppliers, principal offtake purchasers, and EPC contractors. Even a sponsor becomes a source of counterparty risk if it provides the equity during construction or after the project has exhausted its debt funding.

Other important counterparties to a project can include:

- Providers of LOCs and surety bonds;
- Parties to interest rate and currency swaps;
- Buyers and sellers of hedging agreements and other derivative products;
- Marketing agents;
- Political risk guarantors; and
- Government entities.

Because projects have taken on increasingly complex structures, a counterparty's failure can put a project's viability at risk.

Standard & Poor's generally will not rate a project higher than the lowest rated entity (e.g., the offtaker) that is crucial to project performance, unless that entity may be easily replaced, notwithstanding its insolvency or failure to perform. Moreover, the transaction rating may also be constrained by a project sponsor's rating if the project is in a jurisdiction in which the sponsor's insolvency may lead to the insolvency of the project, particularly if the sponsor is the sole owner of the project.

During construction, often the project debt rating could be higher than the credit quality of the builder by credit enhancement and where there is an alternate builder available (see "**Credit Enhancements (Liquidity Support) In Project Finance And PPP Transactions Reviewed**," published on RatingDirect on March 30, 2007.)

Financial performance

Standard & Poor's analysis of a project's financial strength focuses on three main attributes:

- The ability of the project to generate sufficient cash on a consistent basis to pay its debt service obligations in full and on time;
- The capital structure and in particular debt paydown structure; and
- Liquidity.

Projects must withstand numerous financial threats to their ability to generate revenues sufficient to cover operating and maintenance expenses, maintenance expenditures, taxes, insurance, and annual fixed charges of principal and interest, among other expenses. In addition, nonrecurring items must be planned for. Furthermore, some projects may also have to deal with external risk, such as interest rate and foreign-currency volatility, inflation risk, liquidity risk, and funding risk. We factor into our credit evaluation the project's plan to mitigate the potential effects on cash flow that could be caused by these external risks should they arise.

Standard & Poor's relies on debt-service coverage ratios (DSCRs) as the primary quantitative measure of a project's financial credit strength. The DSCR is the cash-basis ratio of cash flow available for debt service (CFADS) to interest and mandatory principal obligations. CFADS is calculated strictly by taking cash revenues from operations only and subtracting cash operating expenses, cash taxes needed to maintain ongoing operations, and cash major maintenance costs, but not interest. As an operating cash-flow number, CFADS excludes any cash balances that a project could draw on to service debt, such as the debt-service reserve fund or maintenance reserve fund. To the extent that a project has tax obligations, such as host-country income tax, withholding taxes on dividends, and interest paid overseas, etc., Standard & Poor's treats these taxes as ongoing expenses needed to keep a project operating (see "**Tax Effects on Debt Service**

Coverage Ratios," published on RatingsDirect on July 27, 2000).

In our analysis, we examine the financial performance of the project under base-case and numerous stress scenarios. We select our stress scenarios on a project-by-project basis, given that each project faces different risks. We avoid establishing minimum DSCRs for different rating levels because once again, every project has different economic and structural features. However, we do require that investment-grade projects have strong DSCRs--well above 1.0x—-under typical market conditions that we think are probable, to reflect the single-asset nature of the business. Strong projects must show very stable financial performance under a wide range of stress scenarios. We also note that DSCRs for project with amortizing debt may not be directly comparable to DSCRs for a project using capital structures that involve a small annual mandatory principal repayment--usually around 1%--coupled with a cash-flow sweep to further reduce principal balances.

Capital structure. Standard & Poor's considers a project's capital structure as part of any rating analysis. A project usually combines high leverage with a limited asset life, so the project's ability to repay large amounts of debt within the asset lifetime is a key analytical consideration and one of the primary differences between rating a project and a typical corporate entity. The same holds true for projects that derive their value from a concession, such as a toll road, without which the 'project' has no value; these concession-derived project financings likely have very long asset lives that extend well beyond the concession term, but nevertheless the project needs to repay debt before the concession expiration. Projects that rely on cash balances to fund final payments demonstrate weaker creditworthiness.

Refinancing risk associated with bullet maturities typical of corporate or public financings are becoming more common in project-finance tranactions. Examples include Term Loan B structures, in which debt is repaid through minimal mandatory amortizations--usually 1% per year--coupled with a debt repayment from a portion of distributable cash flow. While these structures certainly reduce default risk due to lower mandatory principal repayments, they almost always involve a planned refinancing at around seven-to-eight years. In these types of arrangements, our credit analysis determines if the project can refinance debt outstanding at maturity such that it fully amortizes within the remaining asset life on reasonable terms.

The finite useful life of projects also introduces credit risk from an operational standpoint. Given its depreciating characteristics, an aging project may find it more difficult to meet a fixed obligation near the end of its useful life. Thus, for projects in which the useful life is difficult to determine, those structured with a declining debt burden over time are more likely to achieve higher credit ratings than projects those that do not.

Many projects with high leverage seek capital structures that involve second-lien debt, subordinated debt, and payment-in-kind obligations. These structures and instruments are used to tap different investor markets and buffer the senior-most debt from default risk. These other classes of debt are issued either at the operating project or at the holding company that wholly owns the project. Although such structures can be helpful for senior debt, it obviously is to the detriment of the credit quality of the subordinated debt because in most cases this debt class is inferior to senior lenders' rights to cash flow until senior debt is fully repaid, or to collateral in the event of a bankruptcy.

When looking at the creditworthiness of subordinate debt, the DSCR calculation is not CAFDS to subordinate debt interest and principal, but is, rather, total cash available within the entire project--after payments of all expenses and reserve filling--divided by both senior and subordinate debt service. Such a formula more accurately measures the subordinated payment risk. This differs from the notching applied in corporate ratings, and the actual rating might be lower than the coverage ratio implies, depending on the level of structural lock-up and separation of senior debt.

Another analytical approach for multiple-debt-type structures is to examine the performance of the project with all of the debt on a consolidated basis, and then determine the risk exposure for the different classes of debt based on structural features of the deal and provisions within the financing documents. To the extent that senior debt is advantaged, lesser obligations are penalized.

Liquidity. Liquidity is a key part of any analysis, because lenders rely on a single asset for debt repayment, and all assets types have unexpected problems with unforeseen consequences that must be dealt with from time to time.

Liquidity that projects typically have included:

- A debt-service reserve account, to help meet debt obligations if the project cannot generate cash flow due to an unexpected and temporary event. This reserve is typically sized at six months of annual debt service, although amounts can be higher as a result of specific project attributes (e.g, strong seasonality to cash flow, annual debt payments, etc.) The reserve should be cash or an on-demand cash instrument. However, if the reserve is funded with an LOC, we will factor in the potential for the additional debt burden that would occur if the reserve is tapped to help meet debt obligations. A maintenance reserve account is expected for projects in which capital expenditures are expected to be lumpy or where there is some concern about the technology being employed. Almost all investment-grade projects have such a reserve. We do not establish minimum funding level for these reserves, but gauge the need based on the findings of the IE's technical evaluation and our experience.
- Look-forward-and-back distribution and lock-up tests to preserve surplus but lower than expected cash flows. For investment-grade consideration, a project structure will typically have a minimum of 12 months look forward and look back. The DSCR hurdle that should allow distribution is project dependent. The test ensures cash is retained to meet the projects liquidity needs in times of stress.

Transactional Structure

Standard & Poor's performs detailed assessment of the project's structural features to determine how they support the project's ability to perform and pay obligations as expected. Key items include assessing if the project is structured to be a single-purpose entity (SPE), how cash flow is managed, and how the insolvency of entities connected to the project (sponsors, affiliates thereof, suppliers, etc.), who are unrated or are rated lowly, could affect project cash flow.

Special-purpose entities (SPEs)

Projects generally repay debt with a specific revenue stream from a single asset, and since for projects we rate to debt maturity, we need to have confidence that the project will not take on other activities or obligations that are not defined when the rating is assigned. When projects are duly structured as and remain SPEs, we can have more confidence in project performance throughout the debt tenor. If such limitations are absent, we would tend to rate a project more like a corporation, which would typically assume higher credit risk. Standard & Poor's defines a project-finance SPE as a limited-purpose operating entity whose business purposes are confined to:

- Owning the project assets;
- Entering into the project documents (e.g., construction, operating, supply, input and output contracts, etc.);
- Entering into the financing documents (e.g., the bonds; indenture; deeds of mortgage; and security, guarantee, intercreditor, common terms, depositary, and collateral agreements, etc.); and
- Operating the defined project business.

The thrust of this single-purpose restriction is that the rating on the debt obligations represents, in part, an assessment of the creditworthiness of specific business activities and reduces potential external influences on the project.

One requirement of a project-finance SPE is that it is restricted from issuing any subsequent debt that is rated lower than its existing debt. The exceptions are where the potential new debt was factored into the initial rating, debt is subordinated in payment, and security to the existing debt does not constitute a claim on the project. A second requirement is that the project should not be permitted to merge or consolidate with any entity rated lower than the rating on the project debt. A third requirement is that the project (as well as the issuer, if different) continues in existence for as long as the rated debt remains outstanding. The final requirement is that the SPE have an anti-filing mechanism in place to hinder an insolvent parent from bringing the project into bankruptcy. In the U.S., this can be achieved by the independent-director mechanism, whereby the SPE provides in its charter documents a specification that a voluntary bankruptcy filing by the SPE requires the consenting vote of the designated independent member of the board of directors (the board generally owing its fiduciary duty to the equity shareholder[s]). The independent director's fiduciary duty, which is also to the lenders, would be to vote against the filing. In other jurisdictions, the same result is achieved by the "golden share" structure, in which the project issues a special class of shares to some independent entity (such as the bond trustee), whose vote is required for a voluntary filing.

The anti-filing mechanism is not designed to allow an insolvent project to continue operating when it should otherwise be seeking bankruptcy protection. In certain jurisdictions, anti-filing covenants have been enforceable, in which case such a covenant (and an enforceability opinion with no bankruptcy qualification) would suffice. In the U.K. and Australia, where a first "fixed and floating" charge may be granted to the collateral trustee as security for the bonds, the collateral trustee can appoint a receiver to foreclose on and liquidate the collateral without a stay or moratorium, notwithstanding the insolvency of the project debt issuer. In such circumstances, the requirement for an independent director may be waived.

The SPE criteria will apply to the project (and to the issuer if a bifurcated structure is considered), and is designed to ensure that the project remains non-recourse in both directions: by accepting the project's debt obligations, investors agree that they will not look to the credit of the sponsors, but only to project revenues and collateral for reimbursement; investors, on the other hand, should not be concerned about the credit quality of other entities (whose risk profile was not factored into the rating) affecting project cash flows.

Where the project acts as operator, the analysis will look to the ability of the project to undertake the activities on a stand-alone basis, and any links to external parties.

Cash management

Nearly all project structures employ an independent trustee to control all cash flow the project generates, based on detailed project documents that define precisely how cash is to be managed. This arrangement helps prevent cash from leaking out of the project prior to the payment of operating expenses, major maintenance, taxes, and debt obligations. In those cases where there is no trustee, the creditworthiness of the project will be linked directly to the cash manager, which is usually the sponsor. Projects seeking investment-grade ratings will have cash-management structures that prevent any distributions to sponsors--including tax payments--unless all expenses are fully paid, reserves are full, and debt-service coverage rations looking back and forward for a sufficient period are adequate.

Sovereign Risk

A sovereign government can pose a number of risks to a project. For example, it could restrict the project's ability to meet its debt obligations by way of currency restrictions; it could interfere with project operations; and, in extreme cases, even nationalize the project. As a general rule, the rating on a project issue will be no higher than the local-currency rating of the project in its host country. For cross-

border or foreign-currency-denominated debt, the foreign-currency rating of the country in which the project is located is the key determinant, although in some instances debt may be rated up to transfer and convertibility (T&C) assessments of the country Standard & Poor's has established. A T&C assessment is the rating associated with the probability of the sovereign restricting access to foreign exchange needed for servicing debt obligations. For most countries, Standard & Poor's analysis concludes that this risk is less than the risk of sovereign default on foreign-currency obligations; thus, most T&C assessments exceed the sovereign foreign-currency rating. A non-sovereign project can be rated as high as the T&C assessment if its stress-tested operating and financial characteristics support the higher rating.

A sovereign rating indicates a sovereign government's willingness and ability to service its own obligations on time and in full. The sovereign foreign-currency rating acts as a constraint because the project's ability to acquire the hard currency needed to service its foreign-currency debt may be affected by acts or policies of the government. For example, in times of economic or political stress, or both, the government may intervene in the settlement process by impeding commercial conversion or transfer mechanisms, or by implementing exchange controls. In some rare instances, a project rating may exceed the sovereign foreign-currency rating if: the project has foreign ownership that is key to its operations; the project can earn hard currency by exporting a commodity with minimal domestic demand, or other risk-mitigating structures exist.

For cross-border deals, however, other forms of government risk could result in project ratings below the T&C rating. A government could interfere with a project by restricting access to production inputs, revising royalty and tax regimes, limiting access to export facilities, and other means (see "**Ratings Above The Sovereign: Foreign Currency Rating Criteria Update**," published on RatingsDirect on Nov. 3, 2005).

Business And Legal Institutional Development Risk

Even though a project's sponsors and its legal and financial advisors may have structured a project to protect against readily-foreseeable contingencies, risks from certain country-specific factors may unavoidably place lenders at concomitant risk. Specifically, risk related to the business and legal institutions needed to enable the project to operate as intended is an important factor. Experience suggests that in some emerging markets, vital business and legal institutions may not exist or may exist only in nascent form. Standard & Poor's sovereign foreign-currency ratings do not necessarily measure this institutional risk or country risk, and so equating country risk with a sovereign's credit rating may understate the actual risk the project may face (see "**Investigating Country Risk And Its Relationship To Sovereign Ratings In Latin America**," published on RatingsDirect on April 4, 2007).

In some cases, institutional risk may prevent a project's rating from reaching the host country's foreign-currency rating, despite the project's other strengths. That many infrastructure projects do not directly generate foreign-currency earnings and may not be individually important for the host's economy may further underscore the risk.

In certain emerging markets, the concepts of property rights and commercial law may be at odds with investors' experience. In particular, the notion of contract-supported debt is often a novel one. There may, for example, be little or no legal basis for the effective assignment of power-purchase agreements to lenders as collateral, let alone the pledge of a physical plant. Even if lenders can obtain a pledge, it could be difficult for them to exercise their collateral rights in any event. Overall, it is not unusual for legal systems in developing countries to fail to provide the rights and remedies that a project or its creditors typically require for the enforcement of their interests.

Credit Enhancement

Some third parties offer various credit-enhancement products designed to mitigate project-level, sovereign, and currency risks, among other types. Multilateral agencies, such as the Multilateral Investment Guarantee Agency, the International Finance Corporation, and the Overseas Private Investment Corp. to name a few, offer various insurance programs to cover both political and commercial risks. Project sponsors can themselves provide some type of support in mitigation of some risks--a commitment that tends to convert a non-recourse financing into a limited-recourse financing.

Unlike financial guarantees provided by monoline insurers, enhancement packages provided by multilateral agencies and others are generally targeted guarantees and not comprehensive for reasons of cost or because such providers are not chartered to provide comprehensive coverage. These enhancement packages cover only specified risks and may not pay a claim until after the project sustains a loss. Since they are not guarantees of full and timely payment on the bonds or notes, S&P needs to evaluate these packages to see if they may enhance ultimate post-default recovery but not prevent a default. Once a project defaults, delays and litigation intrinsic in the claims process may result in lenders waiting years before receiving an payment.

Therefore, our estimation of the timeliness associated with the credit-enhancement mechanism is critical in the rating evaluation. For Standard & Poor's to give credit value to insurers, the insurer must have a demonstrated history of paying claims on a timely basis. Standard & Poor's financial enhancement rating (FER) for insurers addresses this issue in the case of private insurers (see "**Credit Enhancements (Liquidity Support) In Project Finance And PPP Transactions Reviewed**," published on RatingsDirect on March 30, 2007).

Outlook For Project Finance

Project finance remains a robust vehicle for funding all types of infrastructure across the globe, and its creative financing structures

continue to attract different classes of both issuers and investors. Project finance continues to be a chosen financing technique due to a strong global push to add all types of energy and transportation infrastructure, and to build new or more public-oriented assets, such as stadiums, arenas, hospitals, and schools, just to name a few.

In the Middle East, the continuing development of mega-sized, government-driven energy and real-estate projects is likely to continue for years to come. Related investment in shipping to deliver energy projects from the region is also enormous.

In the U.S., project-finance transactions in the power sector, both for acquisitions but also for new gas- and coal-fired plants and a host of renewable energies, remain very robust. Additionally, development activity of new nuclear power plants, some of which are likely to be undertaken on a project-finance basis, is being studied. The U.S. market is also noteworthy for large investments in natural-gas prepay deals.

In Europe, project investment in rail and air transportation remains sound, and private-finance initiative investment in the U.K. continues to be robust. Its cousin, public-private partnerships lending for transportation and social infrastructure investments in Australia and Canada, has also strengthened.

These favorable trends offset less-favorable developments in other parts of the world, such as in Latin America, where policies in some countries (Venezuela, for example), have led to nationalization of some project assets and an unfavorable market for further project funding.

Investor attention to project risk is important, especially in light of the relatively easy lending covenants and asset valuations seen in a number of project transactions in recent years.

Standard & Poor's expects that project sponsors and their advisors will continue to develop new project structures and techniques to mitigate the growing list of risks and financing challenges. As investors and sponsors return to emerging markets, particularly as infrastructure investment needs increase, project debt will remain a key source of long-term financings. Moreover, as the march toward privatization and deregulation continues in markets, non-recourse debt will likely continue to help fund these changes. Standard & Poor's framework of project risk analysis anticipates the problems of analyzing these new opportunities, in both capital-debt and bank-loan markets. The framework draws on Standard & Poor's experience in developed and emerging markets and in many sectors of the economy. Hence, the framework is broad enough to address the risks in most sectors that expect to use project-finance debt, and to provide investors with a basis with which to compare and contrast project risk.

Watch the related CreditMatters TV segment titled, "Basel III: How It Will Reshape The Playing Field For Global Project Finance Funding," dated Oct. 20, 2011.

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